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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/791,618 | 03/02/2004 | Sherman Fong | P1192-2C1 | 4005 |

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GENENTECH, INC.
1 DNA WAY
SOUTH SAN FRANCISCO, CA 94080

EXAMINER

DEBERRY, REGINA M

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|----------|--------------|
| ART UNIT | PAPER NUMBER |
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1647

DATE MAILED: 07/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/791,618

Applicant(s)

FONG ET AL.

Examiner

Regina M. DeBerry

Art Unit

1647

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-18 is/are pending in the application.
- 4a) Of the above claim(s) 11 and 15-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

5-00

Status of Application, Amendments and/or Claims

The amendment filed 26 October 2004 has been entered in full. Claims 1-10 are cancelled. New claims 11-18 are added.

Applicant's election with traverse of Group II (claims 12-13) in the reply filed on 13 June 2005 is acknowledged. The traversal is on the ground(s) that the Office has not shown that there would be a serious burden on the Examiner if the restriction were not required and that the Examiner has not shown that the inventions of Groups II-IV are distinct. Applicant argues that the inventions of Groups II-IV are drawn to methods of administering a Bolekine polypeptide and that the Examiner has placed each Group into the same class and subclass.

Applicant's arguments have been fully considered and are found partly persuasive. A search is directed to references which would render the invention obvious, as well as references directed to anticipation of the invention, and therefore requires a search of relevant literature in many different areas of subject matter. MPEP 806.04 and 808.01 state that inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions or different effects. The inventions of the instant Groups have different functions and diverse effects. While examination may possibly require a search of classes that overlap there is no reason to believe that the search would be co-extensive. For instance, a search for a method of alleviating infection in a mammal comprising administering a Bolekine polypeptide would not necessarily overlap with a

Art Unit: 1647

method for treating a stroke or multiple sclerosis comprising administering a Bolekine polypeptide. However, the Examiner will rejoin Group II (claims 12-13) with Group III (claim 14).

The requirement is still deemed proper and is therefore made FINAL. Claims 11, 15-18 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected Group, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 13 June 2005.

Claims 12-14 are under examination.

Information Disclosure Statement

The information disclosure statement(s) (IDS) filed 02 May 2005 was received and complies with the provisions of 37 CFR §§1.97 and 1.98. It has been placed in the application file and the information referred to therein has been considered as to the merits.

Specification

The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code. This occurs on page 10, line 22 and page 13, line 4. The specification should be reviewed for improper recitation of hyperlinks. All such recitations should be deleted or amended such that the hyperlinks and/or other form of browser-executable code are rendered inactive. See MPEP § 608.01.

Art Unit: 1647

The disclosure is objected to because of the following informalities: The disclosure contains blank spaces and/or pages (pages 22, 24, 26, 28, 30, 32, 34, 36, 38, 40-44, 46, 48-50). Appropriate correction is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 12-14 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a credible, specific and substantial asserted utility or a well established utility for the isolated polypeptide. The instant claims are drawn to methods of enhancing the infiltration of immune cells in a mammal, comprising administering to said mammal an effective amount of Bolekine polypeptide (SEQ ID NO:2) and a method of alleviating infection in a mammal comprising administering an effective amount of Bolekine polypeptide (SEQ ID NO:2).

The specification generally asserts that the disclosed Bolekine polypeptides will be useful for a number of purposes; however, none of these asserted uses meet the three-pronged requirement of 35 U.S.C. § 101 regarding utility, namely, that the

asserted utility be credible, specific and substantial. The asserted utilities will each be addressed in turn.

1) the Bolekine polypeptide can be used to isolate other polypeptides to which it binds: This asserted utility is not specific or substantial. Since the same can be done with any polypeptide, the asserted utility is not specific to the claimed Bolekine polypeptides. Furthermore, since the specification does not disclose how Bolekine or its binding partners can be used, significant further research would be required of the skilled artisan to determine how to use the claimed polypeptide or its binding partner. Since the asserted utility is not presented in a ready to use, real-world application, the asserted utility is not substantial.

2) the Bolekine polypeptide can be used as a molecular weight marker: This asserted utility is not specific. Since the same can be done with any polypeptide, the asserted utility is not specific to the claimed Bolekine polypeptides.

3) the Bolekine polypeptide can be used in tissue typing: This asserted utility is not specific or substantial. With the exception of a few housekeeping genes, all polypeptides have a tissue specific pattern of expression, and thus virtually any polypeptide can be used in tissue typing. Thus, the asserted utility is not specific to Bolekine.

4) the Bolekine polypeptide can be used in therapy: This asserted utility is not specific or substantial. Since a defect in any polypeptide is likely to cause a disease of some sort, every polypeptide is a target for drug development. Thus, the asserted utility is not specific to the claimed Bolekine polypeptide. Furthermore, the specification does

not disclose a nexus between any specific disease states and a change in amount or form of Bolekine. Significant further research would have to be conducted to identify such a nexus. Therefore, the asserted utility is not substantial.

5) the Bolekine polypeptide can be used to identify agonists or antagonists:

Since the same can be done with any polypeptide, the asserted utility is not specific to the claimed Bolekine polypeptides. Furthermore, since no activity has been assigned to Bolekine, the assays cannot be conducted until the specific biological activities of Bolekine are determined empirically. Therefore, the asserted utility is also not substantial.

Example 10 teaches the stimulatory activity of the Bolekine polypeptide in a mixed lymphocyte reaction (MLR). Example 11 demonstrates that the Bolekine polypeptide can induce inflammation at the site of injection in an animal (pages 87-88). The claimed invention is not supported by a specific or substantial utility because there is no information regarding the correlation of the results of the mixed lymphocyte reactions (results from Example 10) to any real life diseases. The specification fails to teach where an enhancement of an immune response is beneficial and therapeutically useful. Furthermore, the specification does not disclose how the induction of inflammation (results from Example 11) is beneficial and therapeutically useful. There is no information regarding which subsets of immune responses, immune cell types, etc. are targeted by compounds with activities in MLR. There is no correlation to the predisposition of a particular disease and the claimed invention and/or how the results

from Examples 10 and 11 correlate to a substantial utility. Further experimentation is required before this asserted utility is substantial.

The ability to stimulate or inhibit lymphocyte Bolekine proliferation in the MLR assay is an artificial *in vitro* system and does not provide for what specific conditions or for which specific diseases the claimed invention would predictably function. Mixed lymphocyte culture (MLC) is a special case of antigen stimulation in which T lymphocytes respond to foreign histocompatibility antigen on unrelated lymphocytes or monocytes. MLC is a functional assay of cellular response to stimulatory determinants associated predominantly with HLA class II molecules. This reaction is not predictive of general responses of the immune system because, *in vivo*, activation of a lymphocyte is controlled not only by antigen binding but also by interactions with other cells. Kahan clearly states that no *in vitro* immune assay predicts or correlates with *in vivo* immunosuppressive efficacy; there is no surrogate immune parameter as a basis of immunosuppressive efficacy and/or for dose extrapolation from *in vitro* systems to *in vivo* conditions (Cur. Opin. Immunol. 4: 553-560, 1992; see entire document, particularly page 558, column 2).

The assertion that the claimed invention could be useful for the treatment of conditions where the enhancement of the immune response would be beneficial is not specific since there are many such conditions, and it is not predictable of which conditions the claimed invention may function, if any. The specification fails to provide any data or evidence of the results of the assay, therefore, one of ordinary skill in the art cannot evaluate the conclusion. The specification states that "positive increases over

Art Unit: 1647

control are considered positive", however, this does not indicate that statistical significance must occur for determination of a positive result in the assay.

In conclusion, the results of the MLC (a.k.a. MLR) assay do not support a specific and substantial utility for the claimed invention because the assay is not predictive of immune response in general, and one of ordinary skill in the art would not expect a stimulatory effect in the MLC assay to correlate to a general stimulatory effect on the immune system, absent evidence to the contrary.

Thus, the proposed uses of the Bolekine polypeptides are simply starting points for further research and investigation into potential practical uses of the polypeptides. See *Brenner v. Manson*, 148 U.S.P.Q. 689 (Sus. Ct, 1966), wherein the court held that:

"The basic quid pro quo contemplated by the Constitution and the Congress for granting a patent monopoly is the benefit derived by the public from an invention with substantial utility", "[u]nless and until a process is refined and developed to this point-where specific benefit exists in currently available form-there is insufficient justification for permitting an applicant to engross what may prove to be a broad field", and "a patent is not a hunting license", "[i]t is not a reward for the search, but compensation for its successful conclusion."

The instant application has failed to provide guidance as to how one of skill in the art could use the claimed invention in a way that constitutes a specific or substantial utility.

Claims 12-14 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a credible, specific and substantial asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.


Conclusion

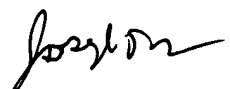
No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Regina M. DeBerry whose telephone number is (571) 272-0882. The examiner can normally be reached on 9:00 a.m.-6:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brenda G. Brumback can be reached on (571) 272-0961. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


RMD
7/21/05


JOSEPH MURPHY
PATENT EXAMINER